

SEQUENCE LISTING

<110> CANFIELD, William

<120> HIGHLY PHOSPHORYLATED ACID BETA-GLUCOCEREBROSIDASE AND METHODS OF TREATING GAUCHER'S DISEASE

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<170> PatentIn version 3.1

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Asn Ile Ala Gly Lys Ser Phe Gln Asn Arg Leu Cys Leu Pro Met Pro
50 55 60

Ile Asp Val Val Tyr Thr Trp Val Asn Gly Thr Asp Leu Glu Leu Leu
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Lys Glu Leu Gln Gln Val Arg Glu Gln Met Glu Glu Glu Gln Lys Ala
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Pro Gly Ser Trp Ile Lys Asp Gly Tyr Cys Asp Lys Ala Cys Asn Asn		
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755 760 765

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770 775 780

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Tyr His Val Leu Phe Asp Ser Tyr Arg Asp Asn Ile Ala Gly Lys Ser
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Phe Gln Asn Arg Leu Cys Leu Pro Met Pro Ile Asp Val Val Tyr Thr
 65 70 75 80

Trp Val Asn Gly Thr Asp Leu Glu Leu Leu Lys Glu Leu Gln Gln Val
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Asn Pro Lys Asp Phe Gln Glu Leu Asn Lys Gln Thr Lys Lys Asn Met
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Ser Arg Phe Glu Asp Asn Glu Glu Leu Arg Tyr Ser Leu Arg Ser Ile
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 35 40 45

Leu Gln Ala Lys Arg Asp Pro Ser Pro Val Ser Gly Pro Val His Leu
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Phe Arg Leu Ser Gly Lys Cys Phe Ser Leu Val Glu Ser Thr Tyr Lys
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Tyr Glu Phe Cys Pro Phe His Asn Val Thr Gln His Glu Gln Thr Phe
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Arg Trp Asn Ala Tyr Ser Gly Ile Leu Gly Ile Trp His Glu Trp Glu
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Ile Ala Asn Asn Thr Phe Thr Gly Met Trp Met Arg Asp Gly Asp Ala
 115 120 125

Cys Arg Ser Arg Ser Arg Gln Ser Lys Val Glu Leu Ala Cys Gly Lys
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Ser Asn Arg Leu Ala His Val Ser Glu Pro Ser Thr Cys Val Tyr Ala
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Leu Thr Phe Glu Thr Pro Leu Val Cys His Pro His Ala Leu Leu Val
 165 170 175

Tyr Pro Thr Leu Pro Glu Ala Leu Gln Arg Gln Trp Asp Gln Val Glu
 180 185 190

Gln Asp Leu Ala Asp Glu Leu Ile Thr Pro Gln Gly His Glu Lys Leu
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10024197-10024101

1004942401

Leu Arg Thr Leu Phe Glu Asp Ala Gly Tyr Leu Lys Thr Pro Glu Glu
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Thr Leu Glu Asn Cys Arg Lys Ala His Lys Glu Leu Ser Lys Glu Ile
245 250 255

Lys Arg Leu Lys Gly Leu Leu Thr Gln His Gly Ile Pro Tyr Thr Arg
260 265 270

Pro Thr Glu Thr Ser Asn Leu Glu His Leu Gly His Glu Thr Pro Arg
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Leu
305

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<400> 9

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Arg Tyr Gly Leu Tyr Val Cys Phe Val Gly Val Val Val Thr Ile Val
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Ser Ala Phe Gln Phe Gly Glu Val Val Leu Glu Trp Ser Arg Asp Gln

Asn Asn Pro Lys Gly Phe Gln Glu Leu Asn Lys Gln Thr Lys Lys Asn
275 280 285

Met Thr Ile Asp Gly Lys Glu Leu Thr Ile Ser Pro Ala Tyr Leu Leu
290 295 300

Trp Asp Leu Ser Ala Ile Ser Gln Ser Lys Gln Asp Glu Asp Ala Ser
305 310 315 320

Ala Ser Arg Phe Glu Asp Asn Glu Glu Leu Arg Tyr Ser Leu Arg Ser
325 330 335

Ile Glu Arg His Ala Pro Trp Val Arg Asn Ile Phe Ile Val Thr Asn
340 345 350

Gly Gln Ile Pro Ser Trp Leu Asn Leu Asp Asn Pro Arg Val Thr Ile
355 360 365

Val Thr His Gln Asp Ile Phe Gln Asn Leu Ser His Leu Pro Thr Phe
370 375 380

Ser Ser Pro Ala Ile Glu Ser His Ile His Arg Ile Glu Gly Leu Ser
385 390 395 400

Gln Lys Phe Ile Tyr Leu Asn Asp Asp Val Met Phe Gly Lys Asp Val
405 410 415

Trp Pro Asp Asp Phe Tyr Ser His Ser Lys Gly Gln Lys Val Tyr Leu
420 425 430

Thr Trp Pro Val Pro Asn Cys Ala Glu Gly Cys Pro Gly Ser Trp Ile
435 440 445

Lys Asp Gly Tyr Cys Asp Lys Ala Cys Asn Thr Ser Pro Cys Asp Trp
450 455 460

Asp Gly Gly Asn Cys Ser Gly Asn Thr Ala Gly Asn Arg Phe Val Ala
465 470 475 480

Arg Gly Gly Gly Thr Gly Asn Ile Gly Ala Gly Gln His Trp Gln Phe
485 490 495

10024197 463404

Gly Gly Gly Ile Asn Thr Ile Ser Tyr Cys Asn Gln Gly Cys Ala Asn
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Ser Trp Leu Ala Asp Lys Phe Cys Asp Gln Ala Cys Asn Val Leu Ser
515 520 525

Cys Gly Phe Asp Ala Gly Asp Cys Gly Gln Asp His Phe His Glu Leu
530 535 540

Tyr Lys Val Thr Leu Leu Pro Asn Gln Thr His Tyr Val Val Pro Lys
545 550 555 560

Gly Glu Tyr Leu Ser Tyr Phe Ser Phe Ala Asn Ile Ala Arg Lys Arg
565 570 575

Ile Glu Gly Thr Tyr Ser Asp Asn Pro Ile Ile Arg His Ala Ser Ile
580 585 590

Ala Asn Lys Trp Lys Thr Leu His Leu Ile Met Pro Gly Gly Met Asn
595 600 605

Ala Thr Thr Ile Tyr Phe Asn Leu Thr Leu Gln Asn Ala Asn Asp Glu
610 615 620

Glu Phe Lys Ile Gln Ile Ala Val Glu Val Asp Thr Arg Glu Ala Pro
625 630 635 640

Lys Leu Asn Ser Thr Thr Gln Lys Ala Tyr Glu Ser Leu Val Ser Pro
645 650 655

Val Thr Pro Leu Pro Gln Ala Asp Val Pro Phe Glu Asp Val Pro Lys
660 665 670

Glu Lys Arg Phe Pro Lys Ile Arg Arg His Asp Val Asn Ala Thr Gly
675 680 685

Arg Phe Gln Glu Glu Val Lys Ile Pro Arg Val Asn Ile Ser Leu Leu
690 695 700

Pro Lys Glu Ala Gln Val Arg Leu Ser Asn Leu Asp Leu Gln Leu Glu
705 710 715 720

1004493 100401

Lys Phe Gly Phe Thr Ser Arg Lys Val Pro Ala His Met Pro His Met
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Ile Asp Arg Ile Val Met Gln Glu Leu Gln Asp Met Phe Pro Glu Glu
35 40 45

Phe Asp Lys Thr Ser Phe His Lys Val Arg His Ser Glu Asp Met Gln
50 55 60

Phe Ala Phe Ser Tyr Phe Tyr Tyr Leu Met Ser Ala Val Gln Pro Leu
65 70 75 80

Asn Ile Ser Gln Val Phe His Glu Val Asp Thr Asp Gln Ser Gly Val
85 90 95

Leu Ser Asp Arg Glu Ile Arg Thr Leu Ala Thr Arg Ile His Asp Leu
100 105 110

Pro Leu Ser Leu Gln Asp Leu Thr Gly Leu Glu His Met Leu Ile Asn
115 120 125

Cys Ser Lys Met Leu Pro Ala Asn Ile Thr Gln Leu Asn Asn Ile Pro
130 135 140

Pro Thr Gln Glu Ala Tyr Tyr Asp Pro Asn Leu Pro Pro Val Thr Lys
145 150 155 160

Ser Leu Val Thr Asn Cys Lys Pro Val Thr Asp Lys Ile His Lys Ala
165 170 175

Tyr Lys Asp Lys Asn Lys Tyr Arg Phe Glu Ile Met Gly Glu Glu Glu
180 185 190

Ile Ala Phe Lys Met Ile Arg Thr Asn Val Ser His Val Val Gly Gln
195 200 205

Leu Asp Asp Ile Arg Lys Asn Pro Arg Lys Phe Val Cys Leu Asn Asp
210 215 220

Asn Ile Asp His Asn His Lys Asp Ala Arg Thr Val Lys Ala Val Leu
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1004197-122104

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Pro Asn Thr Phe Gly Leu Asn Asn Pro Phe Leu Pro Gln Ala Ser Arg
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Leu Gln Pro Lys Arg Glu Pro Ser Ala Val Ser Gly Pro Leu His Leu
50 55 60

Phe Arg Leu Ala Gly Lys Cys Phe Ser Leu Val Glu Ser Thr Tyr Lys
65 70 75 80

Tyr Glu Phe Cys Pro Phe His Asn Val Thr Gln His Glu Gln Thr Phe
85 90 95

Arg Trp Asn Ala Tyr Ser Gly Ile Leu Gly Ile Trp His Glu Trp Glu
100 105 110

Ile Ile Asn Asn Thr Phe Lys Gly Met Trp Met Thr Asp Gly Asp Ser
115 120 125

Cys His Ser Arg Ser Arg Gln Ser Lys Val Glu Leu Thr Cys Gly Lys
130 135 140

Ile Asn Arg Leu Ala His Val Ser Glu Pro Ser Thr Cys Val Tyr Ala
145 150 155 160

Leu Thr Phe Glu Thr Pro Leu Val Cys His Pro His Ser Leu Leu Val
165 170 175

Tyr Pro Thr Leu Ser Glu Ala Leu Gln Gln Arg Leu Asp Gln Val Glu
180 185 190

Gln Asp Leu Ala Asp Glu Leu Ile Thr Pro Gln Gly Tyr Glu Lys Leu
195 200 205

Leu Arg Val Leu Phe Glu Asp Ala Gly Tyr Leu Lys Val Pro Gly Glu
210 215 220

100449-4612001

Thr His Pro Thr Gln Leu Ala Gly Gly Ser Lys Gly Leu Gly Leu Glu
225 230 235 240

Thr Leu Asp Asn Cys Arg Lys Ala His Ala Glu Leu Ser Gln Glu Val
245 250 255

Gln Arg Leu Thr Ser Leu Leu Gln Gln His Gly Ile Pro His Thr Gln
260 265 270

Pro Thr Glu Thr Thr His Ser Gln His Leu Gly Gln Gln Leu Pro Ile
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Gly Ala Ile Ala Ala Glu His Leu Arg Ser Asp Pro Gly Leu Arg Gly
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Asn Ile Leu
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<213> Rattus rattus

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100419-100419

Glu Asn Leu Ser Ser Lys Ile Lys Leu Leu Gln Leu Tyr Ser Glu Ala
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Ser Val Ala Leu Leu Lys Leu Asn Asn Pro Lys Gly Phe Pro Glu Leu
35 40 45

Asn Lys Gln Thr Lys Lys Asn Met Ser Ile Ser Gly Lys Glu Leu Ala
50 55 60

Ile Ser Pro Ala Tyr Leu Leu Trp Asp Leu Ser Ala Ile Ser Gln Ser
65 70 75 80

Lys Gln Asp Glu Asp Val Ser Ala Ser Arg Phe Glu Asp Asn Glu Glu
85 90 95

Leu Arg Tyr Ser Leu Arg Ser Ile Glu Arg His Asp Ser Met Ser Pro
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Leu

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<212> DNA
<213> Drosophila melanogaster

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10024197-123101

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<210> 16
<211> 502
<212> PRT
<213> Drosophila melanogaster

100249-12401

<400> 16

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Ser Leu Glu Lys His Ala Ala Trp Ile Arg His Val Tyr Ile Val Thr
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Asn Gly Gln Ile Pro Ser Trp Leu Asp Leu Ser Tyr Glu Arg Val Thr
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Val Val Pro His Glu Val Leu Ala Pro Asp Pro Asp Gln Leu Pro Thr
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Phe Ser Ser Ser Ala Ile Glu Thr Phe Leu His Arg Ile Pro Lys Leu
65 70 75 80

Ser Lys Arg Phe Leu Tyr Leu Asn Asp Asp Ile Phe Leu Gly Ala Pro
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Leu Tyr Pro Glu Asp Leu Tyr Thr Glu Ala Glu Gly Val Arg Val Tyr
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Gln Ala Trp Met Val Pro Gly Cys Ala Leu Asp Cys Pro Trp Thr Tyr
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Ile Gly Asp Gly Ala Cys Asp Arg His Cys Asn Ile Asp Ala Cys Gln
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Phe Asp Gly Gly Asp Cys Ser Glu Thr Gly Pro Ala Ser Asp Ala His
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Val Ile Pro Pro Ser Lys Glu Val Leu Glu Val Gln Pro Ala Ala Val
165 170 175

Pro Gln Ser Arg Val His Arg Phe Pro Gln Met Gly Leu Gln Lys Leu
180 185 190

Phe Arg Arg Ser Ser Ala Asn Phe Lys Asp Val Met Arg His Arg Asn
195 200 205

Val Ser Thr Leu Lys Glu Leu Arg Arg Ile Val Glu Arg Phe Asn Lys
210 215 220

Pro Lys Arg Thr Ser His Ser Asn Phe Met Met Leu Thr Ser Asn Leu
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Thr Glu Val Val Glu Ser Leu Asp Arg Leu Arg Arg Asn Pro Arg Lys
465 470 475 480

Phe Asn Cys Ile Asn Asp Asn Leu Asp Ala Asn Arg Gly Glu Asp Asn
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Glu Asp Gly Ala Pro Ser
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<210> 17
<211> 2183
<212> DNA
<213> Homo sapiens

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<211> 515
<212> PRT
<213> Homo sapiens

<400> 18

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Pro Pro Pro Pro Ala Thr Pro Gly Ala Gly Gly Leu Ala Val Arg Thr		
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Phe Val Ser His Phe Arg Asp Arg Ala Val Ala Gly His Leu Thr Arg		
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Ala Val Glu Pro Leu Arg Thr Phe Ser Val Leu Glu Pro Gly Gly Pro		
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Gly Gly Cys Ala Ala Arg Arg Arg Ala Thr Val Glu Glu Thr Ala Arg		
115	120	125
Ala Ala Asp Cys Arg Val Ala Gln Asn Gly Gly Phe Phe Arg Met Asn		
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Ser Gly Glu Cys Leu Gly Asn Val Val Ser Asp Glu Arg Arg Val Ser		
145	150	155
Ser Ser Gly Gly Leu Gln Asn Ala Gln Phe Gly Ile Arg Arg Asp Gly		
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Thr Leu Val Thr Gly Tyr Leu Ser Glu Glu Glu Val Leu Asp Thr Glu		
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Asn Pro Phe Val Gln Leu Leu Ser Gly Val Val Trp Leu Ile Arg Asn		
195	200	205
Gly Ser Ile Tyr Ile Asn Glu Ser Gln Ala Thr Glu Cys Asp Glu Thr		
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Gln Glu Thr Gly Ser Phe Ser Lys Phe Val Asn Val Ile Ser Ala Arg		
225	230	235
Thr Ala Ile Gly His Asp Arg Lys Gly Gln Leu Val Leu Phe His Ala		
245	250	255
Asp Gly His Thr Glu Gln Arg Gly Ile Asn Leu Trp Glu Met Ala Glu		
260	265	270

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Gly Ser Ala Thr Phe Val Leu Asn Gly Thr Leu Ala Ser Tyr Pro Ser
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Asp His Cys Gln Asp Asn Met Trp Arg Cys Pro Arg Gln Val Ser Thr
305 310 315 320

Val Val Cys Val His Glu Pro Arg Cys Gln Pro Pro Asp Cys His Gly
325 330 335

His Gly Thr Cys Val Asp Gly His Cys Gln Cys Thr Gly His Phe Trp
340 345 350

Arg Gly Pro Gly Cys Asp Glu Leu Asp Cys Gly Pro Ser Asn Cys Ser
355 360 365

Gln His Gly Leu Cys Thr Glu Thr Gly Cys Arg Cys Asp Ala Gly Trp
370 375 380

Thr Gly Ser Asn Cys Ser Glu Glu Cys Pro Leu Gly Trp His Gly Pro
385 390 395 400

Gly Cys Gln Arg Arg Cys Lys Cys Glu His His Cys Pro Cys Asp Pro
405 410 415

Lys Thr Gly Asn Cys Ser Val Ser Arg Val Lys Gln Cys Leu Gln Pro
420 425 430

Pro Glu Ala Thr Leu Arg Ala Gly Glu Leu Ser Phe Phe Thr Arg Thr
435 440 445

Ala Trp Leu Ala Leu Thr Leu Ala Leu Ala Phe Leu Leu Leu Ile Ser
450 455 460

Ile Ala Ala Asn Leu Ser Leu Leu Leu Ser Arg Ala Glu Arg Asn Arg
465 470 475 480

Arg Leu His Gly Asp Tyr Ala Tyr His Pro Leu Gln Glu Met Asn Gly
485 490 495

Glu Pro Leu Ala Ala Glu Lys Glu Gln Pro Gly Gly Ala His Asn Pro
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Phe Lys Asp
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<210> 19
<211> 2005
<212> DNA
<213> Mus musculus

<400> 19
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<210> 20
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 <212> PRT
 <213> Mus musculus
 <400> 20

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Arg Pro Ser Arg Asp Cys Ala Arg Val Arg Ser Gly Ser Pro Glu Gln
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Glu Ser Trp Pro Pro Pro Pro Leu Ala Thr His Glu Pro Arg Ala Pro
 35 40 45

Ser His His Ala Ala Val Arg Thr Phe Val Ser His Phe Glu Gly Arg
 50 55 60

Ala Val Ala Gly His Leu Thr Arg Val Ala Asp Pro Leu Arg Thr Phe
 65 70 75 80

Ser Val Leu Glu Pro Gly Gly Ala Gly Gly Cys Gly Gly Arg Ser Ala
 85 90 95

Ala	Ala	Thr	Val	Glu	Asp	Thr	Ala	Val	Arg	Ala	Gly	Cys	Arg	Ile	Ala
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Gln	Asn	Gly	Gly	Phe	Phe	Arg	Met	Ser	Thr	Gly	Glu	Cys	Leu	Gly	Asn
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Val	Val	Ser	Asp	Gly	Arg	Leu	Val	Ser	Ser	Ser	Gly	Gly	Leu	Gln	Asn
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Ala	Gln	Phe	Gly	Ile	Arg	Arg	Asp	Gly	Thr	Ile	Val	Thr	Gly	Ser	Cys
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Leu	Glu	Glu	Glu	Val	Leu	Asp	Pro	Val	Asn	Pro	Phe	Val	Gln	Leu	Leu
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Ser	Gly	Val	Val	Trp	Leu	Ile	Arg	Asn	Gly	Asn	Ile	Tyr	Ile	Asn	Glu
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Ser	Gln	Ala	Ile	Glu	Cys	Asp	Glu	Thr	Gln	Glu	Thr	Gly	Ser	Phe	Ser
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Lys	Phe	Val	Asn	Val	Met	Ser	Ala	Arg	Thr	Ala	Val	Gly	His	Asp	Arg
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Val	Asn	Ala	Ile	Asn	Leu	Asp	Gly	Gly	Gly	Ser	Ala	Thr	Phe	Val	Leu
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Asn	Gly	Thr	Leu	Ala	Ser	Tyr	Pro	Ser	Asp	His	Cys	Gln	Asp	Asn	Met
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Trp	Arg	Cys	Pro	Arg	Gln	Val	Ser	Thr	Val	Val	Cys	Val	His	Glu	Pro
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His Cys Glu Cys Thr Ser His Phe Trp Arg Gly Glu Ala Cys Ser Glu
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Leu Asp Cys Gly Pro Ser Asn Cys Ser Gln His Gly Leu Cys Thr Ala
340 345 350

Gly Cys His Cys Asp Ala Gly Trp Thr Gly Ser Asn Cys Ser Glu Glu
355 360 365

Cys Pro Leu Gly Trp Tyr Gly Pro Gly Cys Gln Arg Pro Cys Gln Cys
370 375 380

Glu His Gln Cys Phe Cys Asp Pro Gln Thr Gly Asn Cys Ser Ile Ser
385 390 395 400

Gln Val Arg Gln Cys Leu Gln Pro Thr Glu Ala Thr Pro Arg Ala Gly
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Glu Leu Ala Ser Phe Thr Arg Thr Thr Trp Leu Ala Leu Thr Leu Thr
420 425 430

Leu Ile Phe Leu Leu Leu Ile Ser Thr Gly Val Asn Val Ser Leu Phe
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Leu Gly Ser Arg Ala Glu Arg Asn Arg His Leu Asp Gly Asp Tyr Val
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Glu His Met Glu Glu Thr Ser Asn Pro Phe Lys Asp
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<211> 9792

<212> DNA

<213> Mus musculus

<400> 21

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<213> Artificial Sequence

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Gly Ser Thr Gly
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<210> 23
<211> 13

<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic peptide

<400> 23

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<211> 2279
<212> DNA
<213> Homo sapiens

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 <213> Homo sapiens

<400> 25

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Arg Val Ser Ile Met Ala Gly Ser Leu Thr Gly Leu Leu Leu Leu Gln
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Ala Val Ser Trp Ala Ser Gly Ala Arg Pro Cys Ile Pro Lys Ser Phe
 35 40 45

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Gly Tyr Ser Ser Val Val Cys Val Cys Asn Ala Thr Tyr Cys Asp Ser
50 55 60

Phe Asp Pro Pro Thr Phe Pro Ala Leu Gly Thr Phe Ser Arg Tyr Glu
65 70 75 80

Ser Thr Arg Ser Gly Arg Arg Met Glu Leu Ser Met Gly Pro Ile Gln
85 90 95

Ala Asn His Thr Gly Thr Gly Leu Leu Leu Thr Leu Gln Pro Glu Gln
100 105 110

Lys Phe Gln Lys Val Lys Gly Phe Gly Gly Ala Met Thr Asp Ala Ala
115 120 125

Ala Leu Asn Ile Leu Ala Leu Ser Pro Pro Ala Gln Asn Leu Leu Leu
130 135 140

Lys Ser Tyr Phe Ser Glu Glu Gly Ile Gly Tyr Asn Ile Ile Arg Val
145 150 155 160

Pro Met Ala Ser Cys Asp Phe Ser Ile Arg Thr Tyr Thr Tyr Ala Asp
165 170 175

Thr Pro Asp Asp Phe Gln Leu His Asn Phe Ser Leu Pro Glu Glu Asp
180 185 190

Thr Lys Leu Lys Ile Pro Leu Ile His Arg Ala Leu Gln Leu Ala Gln
195 200 205

Arg Pro Val Ser Leu Leu Ala Ser Pro Trp Thr Ser Pro Thr Trp Leu
210 215 220

Lys Thr Asn Gly Ala Val Asn Gly Lys Gly Ser Leu Lys Gly Gln Pro
225 230 235 240

Gly Asp Ile Tyr His Gln Thr Trp Ala Arg Tyr Phe Val Lys Phe Leu
245 250 255

Asp Ala Tyr Ala Glu His Lys Leu Gln Phe Trp Ala Val Thr Ala Glu
260 265 270

Asn Glu Pro Ser Ala Gly Leu Leu Ser Gly Tyr Pro Phe Gln Cys Leu

Asp Pro Ala Val Gly Phe Leu Glu Thr Ile Ser Pro Gly Tyr Ser Ile
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His Thr Tyr Leu Trp Arg Arg Gln
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<210> 26
 <211> 536
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 <213> Homo sapiens

<400> 26

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 20 25 30

Ala Val Ser Trp Ala Ser Gly Ala Arg Pro Cys Ile Pro Lys Ser Phe
 35 40 45

Gly Tyr Ser Ser Val Val Cys Val Cys Asn Ala Thr Tyr Cys Asp Ser
 50 55 60

Phe Asp Pro Pro Thr Phe Pro Ala Leu Gly Thr Phe Ser Arg Tyr Glu
 65 70 75 80

Ser Thr Arg Ser Gly Arg Arg Met Glu Leu Ser Met Gly Pro Ile Gln
 85 90 95

Ala Asn His Thr Gly Thr Gly Leu Leu Leu Thr Leu Gln Pro Glu Gln
 100 105 110

Lys Phe Gln Lys Val Lys Gly Phe Gly Gly Ala Met Thr Asp Ala Ala
 115 120 125

Ala Leu Asn Ile Leu Ala Leu Ser Pro Pro Ala Gln Asn Leu Leu Leu
 130 135 140

Lys Ser Tyr Phe Ser Glu Glu Gly Ile Gly Tyr Asn Ile Ile Arg Val
 145 150 155 160

Pro Met Ala Ser Cys Asp Phe Ser Ile Arg Thr Tyr Thr Tyr Ala Asp
165 170 175

Thr Pro Asp Asp Phe Gln Leu His Asn Phe Ser Leu Pro Glu Glu Asp
180 185 190

Thr Lys Leu Lys Ile Pro Leu Ile His Arg Ala Leu Gln Leu Ala Gln
195 200 205

Arg Pro Val Ser Leu Leu Ala Ser Pro Trp Thr Ser Pro Thr Trp Leu
210 215 220

Lys Thr Asn Gly Ala Val Asn Gly Lys Gly Ser Leu Lys Gly Gln Pro
225 230 235 240

Gly Asp Ile Tyr His Gln Thr Trp Ala Arg Tyr Phe Val Lys Phe Leu
245 250 255

Asp Ala Tyr Ala Glu His Lys Leu Gln Phe Trp Ala Val Thr Ala Glu
260 265 270

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290 295 300

Pro Thr Leu Ala Asn Ser Thr His His Asn Val Arg Leu Leu Met Leu
305 310 315 320

Asp Asp Gln Arg Leu Leu Leu Pro His Trp Ala Lys Val Val Leu Thr
325 330 335

Asp Pro Glu Ala Ala Lys Tyr Val His Gly Ile Ala Val His Trp Tyr
340 345 350

Leu Asp Phe Leu Ala Pro Ala Lys Ala Thr Leu Gly Glu Thr His Arg
355 360 365

Leu Phe Pro Asn Thr Met Leu Phe Ala Ser Glu Ala Cys Val Gly Ser
370 375 380

Lys Phe Trp Glu Gln Ser Val Arg Leu Gly Ser Trp Asp Arg Gly Met

100249-100250

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Val Arg Asn Phe	Val Asp Ser Pro Ile Ile	Val Asp Ile Thr	Lys Asp
	435	440	445
Thr Phe Tyr Lys	Gln Pro Met Phe Tyr His	Leu Gly His Phe	Ser Lys
	450	455	460
Phe Ile Pro Glu	Gly Ser Gln Arg Val Gly	Leu Val Ala Ser	Gln Lys
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Asn Asp Leu Asp	Ala Val Ala Leu Met His	Pro Asp Gly Ser	Ala Val
	485	490	495
Val Val Val Leu	Asn Arg Ser Ser Lys Asp	Val Pro Leu Thr	Ile Lys
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Asp Pro Ala Val	Gly Phe Leu Glu Thr Ile	Ser Pro Gly Tyr	Ser Ile
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His Thr Tyr Leu	Trp His Arg Gln		
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<400> 27

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